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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/502,420

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Richard O Chen

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12/09/2011

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EXAMINER

CLOW, LORI A

ART UNIT

PAPER NUMBER

1631

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Advisory Action</b> <b>Before the Filing of an Appeal Brief</b></p>	<b>Application No.</b> 10/502,420	<b>Applicant(s)</b> CHEN ET AL.
	<b>Examiner</b> LORI A. CLOW	<b>Art Unit</b> 1631

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 01 December 2011 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
 b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

#### AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
- (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
 (b) ☐ They raise the issue of new matter (see NOTE below);  
 (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
 5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
 6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
 The status of the claim(s) is (or will be) as follows:  
 Claim(s) allowed: \_\_\_\_\_.  
 Claim(s) objected to: \_\_\_\_\_.  
 Claim(s) rejected: 26-44 and 55-57.  
 Claim(s) withdrawn from consideration: 1-25 and 45-54.

#### AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
 9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
 10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

#### REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
 12. ☐ Note the attached Information *Disclosure Statement(s)*. (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
 13. ☐ Other: \_\_\_\_\_.

/LORI A. CLOW/  
 Primary Examiner  
 Art Unit: 1631

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments have been considered. No claim amendments have been submitted. The outstanding rejections from the Final Office Action of 7/1/2011 are maintained and re-iterated below.

#### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 26-38, 40, 42-44 and 54-57 are rejected under 35 U.S.C. 102(e) as being anticipated by 2002/0194201 (Wilbanks et al.).

The instant claims are drawn to a computer system for evaluating user-supplied genomics data with a computer that has a structured database to store and access genomics information and the computer computes complex relationships among genes and/or gene products and the computer is configured to define a profile model, build a collection of profiles using the genomics information, identify overlaps of genomics data and statistically analyze profiles with genomics information.

In regard to claim 26, Wilbanks et al. teach integrated biological/chemical databases formed by establishing entity-relationship models for each of the databases and identifying related entities in the relationship models (abstract). Wilbanks et al. further teach the identification of identical entities, thus teaching overlapping information (paragraph 0009). The plurality of databases represents an ontology that is integrated to create an ontology network. Wilbanks et al. teach a query of results stored as at least one new relationship in the entity-relationship model and the establishment of a confidence level that is assigned to at least one of the relationships (paragraph 0013). The biological databases include gene and protein sequence databases, genomic databases, gene prediction databases (paragraph 0052, 0132, 0133), among others. Wilbanks et al. teach cluster comparisons for data prediction and groupings (paragraph 0087).

In regard to claim 27, Wilbanks et al. teach a priori data built in to the system (paragraph 0069).

In regard to claim 28, Wilbanks et al. teach profiles generated from graph structures (DWGs; paragraph 0086).

In regard to claim 29, Wilbanks et al. teach data query (paragraph 0013).

In regard to claim 30, Wilbanks et al. teach probability calculations (likelihood of success predictions; paragraph 0084, 0132, 0133).

In regard to claim 31, Wilbanks et al. teach databases with gene, gene product, and biological process information (paragraphs 0052 and 0087).

In regard to claim 32, Wilbanks et al. teach differential gene expression data (paragraph 0087).

In regard to claim 33, Wilbanks et al. teach disease data (paragraph 0112).

In regard to claim 34, Wilbanks et al. teach profile generation criterion using biological processes (entire document, 0135).

In regard to claim 35, Wilbanks et al. teach profile generation from nodes (paragraph 0089).

In regard to claim 36, Wilbanks et al. teach nodes that are genes, proteins, gene families etc... (paragraph 0089).

In regard to claim 37, Wilbanks et al. teach comparison to generate biological associations of the different profiles (paragraphs 0018, 0052, 0065, 0084, 0087).

In regard to claim 38, Wilbanks et al. teach data linkages (paragraph 0065).

In regard to claim 40, Wilbanks et al. teach data annotation and associations that include cellular processes or disease processes (paragraphs 0087, 0088, 0112).

In regard to claim 42, Wilbanks et al. teach classifications of profiles from ontology information (paragraphs 0009, 0018, 0087).

In regard to claim 44, Wilbanks et al. teach profile models using different criterion wherein the a priori knowledge is represented by associated databases and the data can be merged/overlaid (paragraphs 0069, 0130)..

In regard to claim 54, Wilbanks et al. teach gene associations for disease using the relationship finder (paragraph 0112).

In regard to claim 55, Wilbanks et al. teach candidate development compounds (paragraph 0120).

In regard to claim 56, Wilbanks et al. teach disease-related pathways (paragraph 0112, 0120).

In regard to claim 57, Wilbanks et al. teach gene expression linked to markers which are linked to disease states (paragraphs, 0120, 0193-0195).

#### Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over 2002/0194201 (Wilbanks et al.), as applied to claims 26 and 40 above, in further view of Karp et al. (TIBTECH (1999) Vol. 17, pages 275-281; IDS reference).

In regard to claim 26, Wilbanks et al. teach integrated biological/chemical databases formed by establishing entity-relationship models for each of the databases and identifying related entities in the relationship models (abstract). Wilbanks et al. further teach the identification of identical entities, thus teaching overlapping information (paragraph 0009). The plurality of databases represents an ontology that is integrated to create an ontology network. Wilbanks et al. teach a query of results stored as at least one new relationship in the entity-relationship model and the establishment of a confidence level that is assigned to at least one of the relationships (paragraph 0013). The biological databases include gene and protein sequence databases, genomic databases, gene prediction databases (paragraph 0052, 0132, 0133), among others. Wilbanks et al. teach cluster comparisons for data prediction and groupings (paragraph 0087).

In regard to claim 40, Wilbanks et al. teach data annotation and associations that include cellular processes or disease processes (paragraphs 0087, 0088, 0112).

Wilbanks et al. do not specifically teach display of data using GUI, however Karp et al. teach integrated pathway-genome databases for drug discovery in which graphical user interface is used that includes a visualization tool for all data types (page 278). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to have used the GUI of Karp et al. to display the ontology database profiles of Wilbanks et al., as GUI is a well-known interface for user-friendly operations. Both Karp et al. and Wilbanks et al. use genome databases to establish relational information.

2. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over 2002/0194201 (Wilbanks et al.), as applied to claims 26 above, in further view of Qu et al. (Intelligent Systems in Biology (2002) March/April, pages 21-27; IDS reference; previously cited).

In regard to claim 26, Wilbanks et al. teach integrated biological/chemical databases formed by establishing entity-relationship models for each of the databases and identifying related entities in the relationship models (abstract). Wilbanks et al. further teach the identification of identical entities, thus teaching overlapping information (paragraph 0009). The plurality of databases represents an ontology that is integrated to create an ontology network. Wilbanks et al. teach a query of results stored as at least one new relationship in the entity-relationship model and the establishment of a confidence level that is assigned to at least one of the relationships (paragraph 0013). The biological databases include gene and protein sequence databases, genomic databases, gene prediction databases (paragraph 0052, 0132, 0133), among others. Wilbanks et al. teach cluster comparisons for data prediction and groupings (paragraph 0087).

Wilbanks et al. do not specifically teach the kind of statistical significance testing used that includes null hypothesis over probability. However, Qu et al. teach a system and method for integrating multidimensional data for relationship inference in genomics systems by implementing data from gene ontologies (page 22, column 3). Qu et al. also teach the calculation of relationship inference by statistical methods such as cluster analysis using hierarchical clustering employing the Pearson correlation coefficient to construct a relationship tree (page 24, column 3), showing that, in addition to the algorithms used by Wilbanks et al., various other statistical methodology may be employed to analyze relationship data for overlapping pathways, therefore making it prima facie obvious to one of ordinary skill in the art at the time of the invention to have used the well-known statistical method of null hypothesis and probability distribution to analyze statistical significance of pathway overlap. One would have had a reasonable expectation of success in doing so because such databases were known and developed at the time of the invention and readily available for scientific use. Wilbanks et al. teach information gathering from a myriad of sources, including literature based findings, multiple databases and other findings (Figure 3).

In addition to the above rejections, the Final Office Action stated that the submitted Declarations under 37 CFR 1.131 were insufficient to antedate the 2002/0194201 (Wilbanks et al.) reference.

#### Response to Applicant's Arguments

1. Applicant states that with regard to the 35 USC 102(e) rejection over 2002/0194201 (Wilbanks et al.) that the "subject matter relied upon by the Office Action is not entitled to the filing date of 5 June 2001 of the Wilbanks provisional application". Applicant further states that the "provisional Application US 60/296,018, which the Examiner relies on to determine the effective filing date under 102(e) of Wilbanks et al., fails to disclose the teachings of Wilbanks et al. that the Examiner uses in claim rejections under 102(e). Applicant points to page 4 of the Final Office action and states that Wilbanks et al. does not teach "a query of results stored as at least one new relationship in the entity-relationship model and the establishment of a confidence level is assigned to at least one of the relationships". Applicant's argument is solely that the provisional Application does not teach "confidence levels".

This is not persuasive. Firstly, the instant claims are not drawn to recitations of "confidence levels". The Examiner cited that passage to show that Wilbanks et al. taught assessing statistical significance as is claimed. While it is true that the provisional application 60/296,018 filed 5 June 2001 does not teach "confidence levels", it is submitted herein that teachings to establishment of "relationships" and statistical significance are taught in the provisional application (for example see page 2 regarding "clustering analysis", which is a statistical tool and page 6 for "cluster analysis").

In addition, provisional Application 60/356,616 filed 13 February 2002 is also relied upon as an effective filing date. 60/356,616 does teach the overlaying/merging/association of gene ontologies (page 3-4) that includes the use of inference engines to designate relationships and assign confidence levels and/or validity to relationships (page 5). Thus, the Declarations, as submitted, stating that "the invention described in Application No: 10/502,420 was reduced to practice and/or conceived prior to May 13, 2002 are insufficient to overcome the effective filing date February 13, 2002.

2. In addition, with regard to the Declarations filed under 37 CFR 1.131, Applicant argues that "the conception and reduction to practice of the invention occurred before May 13, 2002, the effective date of the Wilbanks et al. reference under 102(e) and that as such, Applicant avers that "neither the facts establishing diligence, nor the actual dates of acts relied upon to establish diligence need to be provided". This is not persuasive. As stated above, Applicant is incorrect with regard to the effective filing date of the Wilbanks et al. reference. The effective filing date is one of June 5, 2001 (60/296,018) showing certain aspects of the invention and February 13, 2002 (60/356,616) showing certain aspects of the invention. As to the arguments presented above, Applicant still has not overcome the filing date of February 13, 2002 by submission of the 1.131 Declarations regarding reduction to practice and conception before May 13, 2002.

3. Finally, Applicant "disagrees" with the finding that the the Declarations were insufficient to overcome the Wilbanks et al. reference based on the exhibits relied upon (Exhibits 1-4) not specifically being referred to in the Declarations in terms of what they are relied upon to show. Applicant avers that the "Exhibits 1-4 are self-evident in what they show".

This is not persuasive for the reasons stated in the Final Office Action. In addition, it is acknowledged that Applicant has presented as evidence Exhibits 1-4 with no explanation in the Declaration as to their relevance. It is noted that it is Applicant that has the burden to explain the contents of the pages as proof of acts amounting to conception, diligence and reduction to practice. Applicant is referred to In re Borkowski and Van Venrooy, 184 USPQ 29 (CCPA 1974). The Declarations presented merely state the following: "Exhibit 1 is an internal company presentation from prior to May 13, 2002; Exhibit 2 is an internal company draft project proposal from 3 days after Exhibit 1; Exhibit 3 is an internal company e-mail from 18 days after Exhibit 1; and Exhibit 4 is an internal company presentation from 51 days after Exhibit 1". Absent a clear explanation of pointing out exactly what facts are established therein and relied upon by Applicant, these Exhibits provide little assistance in enabling the PTO to determine Applicant's assertions of conception, diligence and reduction to practice before the date of the prior art. Applicant has failed to provide a nexus between Exhibits 1-4 and that which is claimed in claims 26-44 and 55-57 herein.

As such, the prior art rejections of record are maintained and the Declarations are not accepted.

No claims are allowed.

#### Inquiries

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central Fax Center Number is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lori A. Clow, Ph.D., whose telephone number is (571) 272-0715. The examiner can normally be reached on Monday-Friday from 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on (571) 272-0720.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

December 6,, 2011

/Lori A. Clow/

Primary Patent Examiner

Art Unit 1631